DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-007372
Date Inspected: 06-Jun-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below		**CWI Present:**	☑ Yes	☐ No
Inspected CWI report:	☐ Yes	☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No ☐ N/A
Electrode to specification:	☑ Yes	☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No ☐ N/A
Qualified Welders:	☑ Yes	☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No ☐ N/A
Approved Drawings:	☑ Yes	☐ No ☐ N/A	**Approved WPS:**	☑ Yes	☐ No ☐ N/A
			Delayed / Cancelled:	☐ Yes	☑ No ☐ N/A

Bridge No: 34-0006
Component: OBG and Tower Fabrication

Summary of Items Observed:

CWI Inspectors: Mr. Liu Fa Wen, Mr. Zou Liu Hai, Mr. Li Yang, Mr. Chen Chih Chien

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP101-001, DP122-001, DP122-002, DP128-001, DP149-001, DP153-001, DP176-001, DP338-001, DP423-001, DP473-001 and DP452-001.

OBG Bay 7

The QA Inspector observed ZPMC welder Mr. Xi Xuehua, stencil 058174 is using the flux cored process WPS-B-T-2233-TC-U4b-F to make fillet weld SP207-012-025 on OBG Side Plate weld SP207-012. The QA Inspector observed a welding current of approximately 300 amps and 27.6 volts, the welding electrodes are being stored in a heated container and a ZPMC QC Inspector is monitoring the welding. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Sun Tiyu, stencil 054459 is using the flux cored process WPS-B-T-2233-TC-U4b-F to make fillet weld SP207-012-051 on OBG Side Plate weld SP207-012. The QA Inspector observed a welding current of approximately 270 amps and 26.0 volts, the welding electrodes are being stored in a heated container and a ZPMC QC Inspector is monitoring the welding. Items observed by the QA Inspector appear to comply with project specifications.

OBG Bay 6

The QA Inspector observed ZPMC welder Ms. Mu Jingfen, stencil 054458 using submerged arc welding procedure specification WPS-B-T-3221-TC-U5-S-1 to make groove weld ND1-SA658-77M-14-1A. The QA Inspector observed Quality Control personnel are monitoring the base material temperature and other welding attributes. This QA Inspector measured a welding current of 590 amps and 30.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Ms. Mu Jingfen, stencil 054458 using submerged arc welding procedure specification WPS-B-T-2221-B-U2C-S-2 to make groove weld CB202C-008-003. The QA Inspector observed Quality Control personnel are monitoring the base material temperature and other welding attributes. This QA Inspector measured a welding current of 560 amps and 31.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Zhou Songsong, stencil 068091 is using shielded metal arc process WPS-B-P-3313-TC-P5 to make tower double diaphragm weld SSD1-DPSA4-024 in the 3G position. The QA Inspector observed a welding current of approximately 165 amps and the base material where the weld is being made had been preheated with an electric heating element to a temperature above 140 degrees Celsius. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Niu Duojun, stencil 068091 is using shielded metal arc process WPS-B-P-3313-TC-P5 to make tower double diaphragm weld SSD1-DPSA4-025 in the 3G position. The QA Inspector observed a welding current of approximately 150 amps and the base material where the weld is being made had been preheated with an electric heating element to a temperature above 140 degrees Celsius. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Du Heng Hua, stencil 037779 is using shielded metal arc procedure WPS-B-P-3313-TC-P5 to make tower double diaphragm tack weld WSD1-DPSA4-013B/B-024. The QA Inspector observed a welding current of approximately 170 amps and the base material where the weld is being made had been preheated with a torch to a temperature above 140 degrees Celsius. The QA Inspector observed the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container which appears to be connected to the welding power supply cable. The QA Inspector felt the rod storage container and determined the external surface appears to be at an ambient temperature and the welding electrodes inside the container are above the ambient air temperature. The QA Inspector informed ZPMC QC Inspector Mr. Sun Zi Wang that the electrically heated electrode storage container does not appear to be maintaining the welding electrodes at an elevated temperature and Mr. Wang had Mr. Du Heng Hua move the electrical connection to different location and the QA Inspector then observed the power light on the electrically heated electrode storage

container was indicating the heating element was energized. Items observed by the QA Inspector do not appear to fully comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Fu Yanjie, stencil 066268 is using shielded metal arc procedure WPS-B-P-3313-TC-P5 to make tower double diaphragm tack weld WSD1-DPSA4-013B/B-023. The QA Inspector observed a welding current of approximately 270 amps and the base material where the weld is being made had been preheated with a torch to a temperature above 140 degrees Celsius. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 5

The QA Inspector observed ZPMC welder Ms. Hu Xiuli, stencil 215248 using submerged arc welding procedure specification WPS-B-T-2221-B-L2C-S to make groove weld CB202D-011-001. The QA Inspector observed a torch is being used to preheat the base material to a minimum of 60 degrees Celsius and that Quality Control personnel are monitoring the base material temperature and other welding attributes. This QA Inspector measured a welding current of 640 amps and 35.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 2

The QA Inspector observed ZPMC personnel using cutting torches and air carbon arc cutting equipment to remove various welded plates and pipes from the interior surfaces of segment SEG1AAW and SEG1AAE. The QA Inspector asked ZPMC Certified Welding Inspector Mr. Liu Wei Wei if ZPMC had engineering approval to remove these welds and Mr. Wei showed the QA Inspector a document titled “Inspection Plant for 1AA Repair” which has a sketch attached showing various plates are to be removed from Segments 1AAW and 1AAE. This document does not have any Caltrans signatures or other indication that Caltrans Engineering has concurred with the removal of welds.

OBG Bay 13

The QA Inspector observed ZPMC welder Mr. Hu Huan Huan, stencil 217562 is using flux cored welding procedure WPS-B-T-2232-TC-U5-F-2 to make weld DP147-001-083. The QA Inspector observed a welding current of approximately 230 amps, 25.0 volts and that ZPMC is using a torch to preheat the base material prior to welding. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Zhuang Hua, stencil 068206 is using flux cored welding procedure WPS-B-T-2232-TC-U5-F-2 to make welds DP147-001-083. The QA Inspector observed a welding current of approximately 220 amps, 28.0 volts and that ZPMC is using a torch to preheat the base material prior to welding. Items observed on this date appeared to generally comply with applicable contract documents

Summary of Conversations:

See above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or

remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer